

REMARKS

Formal Matters

Claims 1-15 are all the claims pending in the application. Claims 1-8 have been examined. New claims 13-15 are added to further cover the subject matter of the invention. No new matter is added.

Applicants thank the Examiner for acknowledging the claim to foreign priority under 35 U.S.C. § 119(a)-(d) or (f). Applicants also thank the Examiner for considering all of the references cited in the information disclosure statement submitted on October 28, 2005.

Election/Restriction

Applicants affirm the election that was made without traverse on July 2, 2008, to prosecute the invention of Group I, which includes claims 1-8. In making the restriction requirement, the Examiner asserts that the “special technical feature does not provide a contribution which both inventions make over the prior art.” (Office Action, page 3.) By electing Group I without traverse, Applicants make no admission to the validity of the Examiner’s assertion.

Double Patenting

The Examiner provisionally rejected claims 1-8 as allegedly being non-statutory obviousness-type double patenting as follows:

- Claims 1-8 were provisionally rejected over claims 1-7 of co-pending U.S. Application No. 10/568,386;
- Claims 1-5 and 8 were provisionally rejected over claims 1 and 2 of co-pending U.S. Application No. 10/566,579 in view of Iijima et al. (Chemical Physics Letters, Vol. 309 (1999), pages 165-170);
- Claims 1-4 and 8 were provisionally rejected over claims 1, 4, 6 and 18 of co-pending U.S. Application No. 10/560,593;

- Claims 1-4 and 8 were provisionally rejected over claims 1-6 and 8-15 of co-pending U.S. Application No. 10/556,088;
- Claims 1-4 and 8 were provisionally rejected over claims 1-6 and 8-15 of co-pending U.S. Application No. 10/544,400;
- Claims 1-4 and 8 were provisionally rejected over claims 1-6 and 8-15 of co-pending U.S. Application No. 10/544,133

(Office Action at pages 5-11.)

Applicants are deferring to address these provisional rejections until a patent issues from one of the above-cited applications.

Claim Objections

The Examiner objected to claim 1 because it does not end with a period. Claim 1 has been amended to end with a period.

The Examiner objected to claim 3 because it ends with “said graphite target.” Claim 3 has been amended to recite “to completely vaporize a thickness of the graphite target.”

The Examiner objected to claim 7 because the phrase “while rotates said rotating body” is allegedly unclear. Claim 7 has been amended to recite “while rotating said rotating body.”

In view of the above, Applicants respectfully request that the Examiner withdraw the objections to claims 1-8.

Claim Rejections under 35 U.S.C. § 102 and § 103

The Examiner rejected claims 1, 2, 5 and 8 under 35 U.S.C. § 102(b) as allegedly being anticipated by S. Iijima et al., Nano-Aggregates of Single-Walled Graphitic Carbon Nano-horns, Chemical Physics Letters, vol. 309, pages 165-170 (1999). In the alternative, the Examiner rejected claims 1, 2, 5 and 8 under 35 U.S.C. § 103(a) as allegedly being obvious over Iijima. Applicants respectfully disagree.

First, Iijima discloses that the shape of the graphite target is a rod. Further, in Iijima, the graphite target surface that is irradiated with the laser beam once becomes roughened making the graphite target surface very bumpy. When the roughened region is irradiated again on the same surface, the obtained nanocarbon is not of the same quality. (See current application, page 2 lines 7-21.) Therefore, the rod shaped graphite target that has been irradiated with the laser beam is no longer able to be used and the use efficiency of the graphite target goes down. Moreover, it is difficult to reduce the production cost of the nanocarbon with the device described in Iijima.

By comparison, claim 1 recites that the graphite target has a shape of “a sheet-like or a quadratic prism.” The graphite target having the shape of a sheet-like or quadratic prism improves the use efficiency of the graphite target. Therefore, the nanocarbon production apparatus of the present invention is able to reduce the cost of the graphite target in producing the nanocarbon.

Additionally, it would not have been obvious to modify Iijima to produce a graphite target with a sheet-like or quadratic prism shape since Iijima specifically discloses a graphite target rod that rotates. Thus, a person having ordinary skill in the art would not be able to easily complete the present invention based on Iijima.

Regarding claims 2, 5, and 8, these claims depend from independent claim 1. As such, Applicants submit that these claims are allowable at least by virtue of their dependency from claim 1.

Claim Rejections under 35 U.S.C. § 103

The Examiner rejected claims 3 and 4 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Iijima in view of Wiler et al. (U.S. Pat. No. 5,478,426). The Examiner also

rejected claims 6 and 7 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Iijima in view of Davanloo (U.S. Pat. No. 5,411,797).

Applicants respectfully submit that claims 3, 4, 6 and 7 are allowable at least by virtue of their dependency from claim 1.

New Claims

For additional claim coverage merited by the scope of the invention, Applicants are adding new claims 13-15. Applicants respectfully submit that claims 13-15 are allowable at least by virtue of their dependency from independent claim 1.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

/Howard L. Bernstein/

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

Howard L. Bernstein
Registration No. 25,665

WASHINGTON OFFICE

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CUSTOMER NUMBER

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